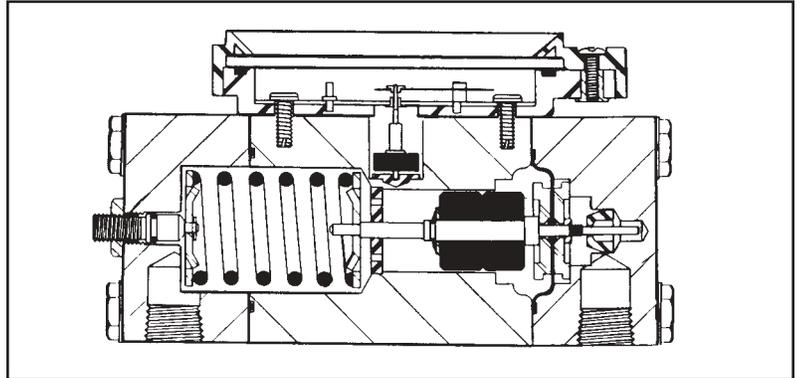


Model 140/141 Series Installation and Operating Instructions



INSPECTION

Before installation check the nameplate on each instrument against the receiving paperwork and the intended application for correct part number, materials of construction, working pressure, dial range, etc. If equipped with switches, check electrical rating, type of enclosure, etc. Inspect for shipping damage and, if damaged, report it immediately.

NOTE - Before attempting repairs contact your local Mid-West Representative or our factory. Failure to do so will void any warranty.

PRODUCT DESCRIPTION

The Model 140/141 "Series" is a medium range differential pressure instrument available as a switch, a gauge, or both. See "Part Numbering System", (Fig. 6) for available options.

A flexible elastomer diaphragm and calibrated range spring are moved by differential pressure. A pair of magnets, coupled with the diaphragm, transmit this motion through the wall of the pressure housing to a follower

magnet attached to an indicating pointer. The rotation of the follower magnet causes the pointer to track movement of internal magnet and indicate the differential on the dial scale.

When equipped with switches, a contact is made, or broken, by the magnetic field of the internal magnets.

The diaphragm is totally supported upon reaching full travel in either direction, providing full over-range protection to the rated working pressure of the housing.

INSTALLATION

Model 140/141 "Series" is calibrated and tested prior to shipment and is ready for immediate installation. Use of the following installation procedures should eliminate potential damage and provide optimum trouble-free operation.

1. CONNECTIONS

1/4" FNPT is provided as standard but check paperwork for connections ordered. There are two connections on the housing identified as "hi" and "lo" for high pressure and low pressure.

Be sure these get plumbed to the proper connections on your system. Improper connection will not damage the instrument, but it will not function properly.

Flexible tubing is recommended to minimize effect of any vibration that may exist.

2. INSTRUMENT LOCATION

On liquid service, the instrument should be mounted **below** the process connections to facilitate self-bleeding. On gas service, it should be located **above** the process connections to promote self-draining. If the process contains particulates, a “pigtail” loop or drop leg (manometer “U-tube” configuration) in the tubing will minimize the possibility of it migrating into the instrument.

3. PANEL MOUNTING

Gauges with 2-1/2" dials can only be mounted through the **rear** of the panel. Make the proper panel cutout as indicated in (Fig. 5). Remove the (4) bezel screws. Insert the gauge front through the rear of the panel and reinstall the bezel screws through the front of the panel and into the gauge bezel. Tighten the screws securely, alternating in a **diagonal** pattern.

Gauges with 3-1/2" dial must be mounted from the front of the panel. Contact factory for mounting information and dimensional data.

The Gauges with 4-1/2" dial must be mounted from the **front** of the panel. Make the cutout as shown in (Fig. 5). Insert the four (4) panel

mounting studs, finger tight, into the metal inserts located in the rear of the bezel. Insert the gauge through the panel aligning the panel mounting studs with the holes in the panel. Install the four (4) #8-32 nuts onto the studs and tighten securely.

4. PIPE MOUNTING

An optional pipe mounting kit is available for mounting the gauge to a 2" vertical or horizontal pipe.

5. TROUBLE SHOOTING

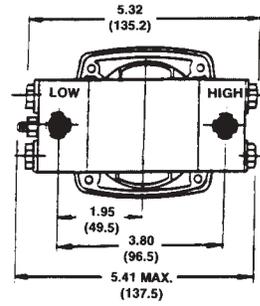
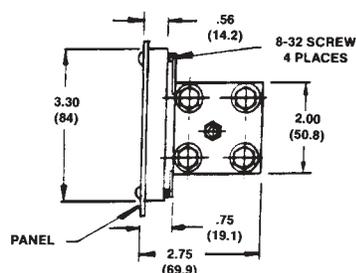
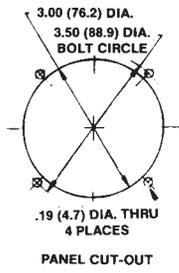
A. Gauge does not indicate differential.

- i. Check for proper hook up, high to “hi” and low to “lo” ports.
- ii. Make certain block valves are open and, if using a 3-valve manifold, that the equalizer (balance) valve is closed.
- iii. If i & ii check out correctly, verify that there is pressure to the instrument.
- iv. If there is pressure to the instrument, check to determine that there is differential across the unit being monitored. If so, contact the factory for assistance and/or an “RGA” (Return Goods Authorization) number to return the instrument for repair or replacement.

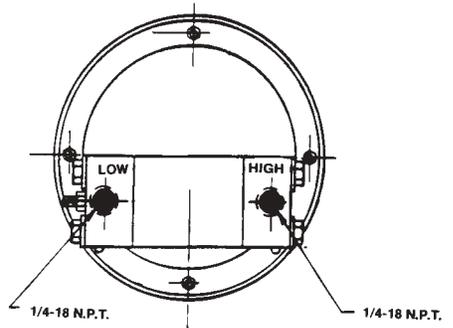
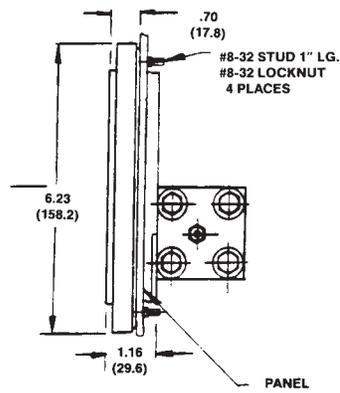
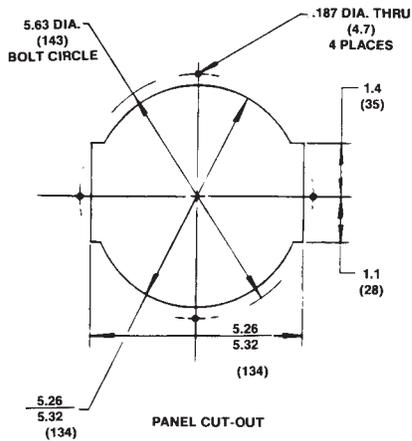
B. Gauge accuracy and set point problems:

- i. Verify gauge is not in an electromagnetic/magnetic environment. i.e.; close proximity to high current power lines.
- ii. All others, contact the factory for assistance.

MODEL 140 - 2-1/2 INCH PLASTIC DIAL ASSY. (STANDARD)



MODEL 140 - 4-1/2 PLASTIC INCH DIAL ASSY. (OPTIONAL)



(Fig. 5)

- NOTES:
1. Drawings show standard gauge nominal dimensions. (not to scale)
 2. Dimensions shown in parentheses are in millimeters.
 3. Mounting Dimensions for 3-1/2" & 4-1/2" Alum. Dial Assys. - Contact Factory

Manufacturer reserves the right to change specifications without prior notice. All dimensions in inches and millimeters.

STANDARD MODEL SPECIFICATIONS

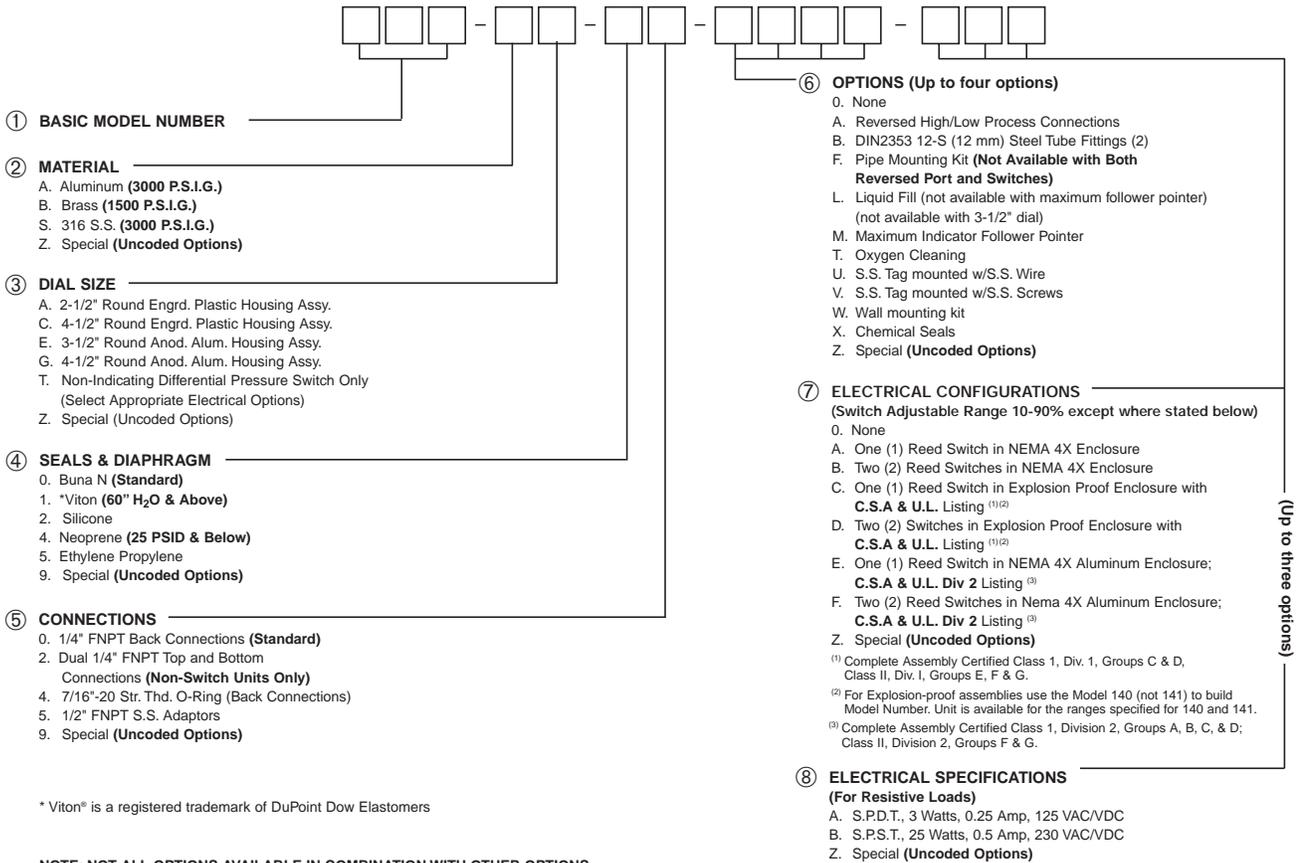
Model 141 0-50" H₂O thru 0-25 PSID
 Model 140 over 0-25 PSID thru 0-100 PSID
140/141-AA-00-00

3000 P.S.I.G. Working Pressure Aluminum Body, Buna N Diaphragm and Seals, 316 Stainless Steel Internal Metal Parts, Ceramic Magnets, Teflon Guide Bushings, 1/4" FNPT Back Connections, 2-1/2" Round Dial in Corrosion Resistant Engineering Plastic Case with Shatter-Resistant Acrylic Lens.

DIFFERENTIAL RANGE & ACCURACY

| | |
|---|---|
| 0-50 to 0-400" H ₂ O (125 mbar to 1 bar) or equivalent | 0-15 thru 0-100 PSID. (1 to 7 bar) or equivalent |
| ±5% Full Scale (Ascending) | + 3-2-3% Full Scale (Ascending) |

PART NUMBERING SYSTEM (Fig. 6)



Manufacturer reserves the right to change specifications without prior notice.

PROOF PRESSURE: Two times rated working pressure.

TEMPERATURE LIMITATIONS: -40°F (-40°C) to +200°F (+93°C). These limits are based on the entire instrument being saturated to these temperatures. System (process) temperatures may exceed these limitations with proper installation.

STANDARDS: All Model 140/141 Series differential pressure gauges either conform to and/or are designed to the requirements of the following standards:

ASME B1.20.1
 ASME B40.1
 CSA-C22.2 No. 14.25 and 30
 EN-61010-1

NACE MR0175
 NEMA Std. No. 250
 SAE J514
 UL Std. No. 50,508 and 1203



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